

[illegible]

**Fifth Semester B.E. Degree Examination, June - 2025**  
**Research Methodology and IPR**

**Time: 3 hrs.****Max. Marks: 100**

**Note: Answer any Five full questions, choosing ONE full question from each module.**

## Module - 1

| <b><u>Module - 1</u></b> |                                                                                                                                                       | <b>Marks</b> | <b>CO's / Blooms Level</b> |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|
| <b>1</b>                 | a. Define research and explain its Significance and Importance.                                                                                       | <b>10</b>    | <b>CO1/L2</b>              |
|                          | b. Empirical research in India in particular creates so many problems for researchers. State the problems that are usually faced by such researchers. | <b>10</b>    | <b>CO1/L2</b>              |

**OR**

|          |                                                                                                                     |           |               |
|----------|---------------------------------------------------------------------------------------------------------------------|-----------|---------------|
| <b>2</b> | a. Compare and contrast descriptive and analytical research in terms of their objectives, methods, and applications | <b>10</b> | <b>CO1/L3</b> |
|          | b. Compare and contrast quantitative and qualitative research approaches                                            | <b>10</b> | <b>CO1/L3</b> |

## Module - 2

|          |                                                                                                                       |           |               |
|----------|-----------------------------------------------------------------------------------------------------------------------|-----------|---------------|
| <b>3</b> | a. What are the main steps involved in conducting a literature review? Explain the importance of each step-in detail. | <b>10</b> | <b>CO2/L2</b> |
|          | b. Describe the development of theoretical and conceptual framework in literature review                              | <b>10</b> | <b>CO2/L2</b> |

**OR**

|   |                                                                                 |    |        |
|---|---------------------------------------------------------------------------------|----|--------|
| 4 | a. What are the basic principles of experimental design Explain in detail?      | 10 | CO2/L2 |
|   | b. Compare and contrast formal and informal experimental designs with examples. | 10 | CO2/L2 |

## Module - 3

|   |                                                                                                                |    |        |
|---|----------------------------------------------------------------------------------------------------------------|----|--------|
| 5 | a. What are the essential steps involved in conducting a sample survey to ensure accurate and reliable results | 10 | CO3/L2 |
|   | b. What are the main types of probability & non-probability sampling designs explain in detail.                | 10 | CO3/L2 |

**OR**

|          |                                                                                           |           |               |
|----------|-------------------------------------------------------------------------------------------|-----------|---------------|
| <b>6</b> | a. Describe the primary and secondary methods for data collection with example.           | <b>10</b> | <b>CO3/L2</b> |
|          | b. What factors should be considered when selecting data collection methods for research? | <b>10</b> | <b>CO3/L2</b> |

## Module - 4

7 a. Describe the steps involved in the hypothesis testing process. 10 CO4/L2

- b. Explain the decision-making process in hypothesis testing using the significance level ( $\alpha$ ) and p-value.

10 CO4/L2

**OR**

- 8 a. Explain the key steps involved in the interpretation of research data.  
b. What precautions should be taken while writing research reports to ensure clarity, credibility, and integrity?

10 CO4/L2

10 CO4/L2

**Module - 5**

- 9 a. Discuss the significance of Intellectual Property Rights (IPR) in research and innovation.  
b. Explain the concept of copyright in computer programs and highlight the special rights granted to authors under copyright law.

10 CO4/L2

10 CO4/L2

**OR**

- 10 a. What are the essential criteria for granting a patent? Discuss the concepts of novelty, utility, and inventiveness (non-obviousness).  
b. Discuss the process for registering a trademark under Indian trademark law.

10 CO4/L2

10 CO4/L2

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